VPDES PERMIT FACT SHEET

This document gives pertinent information concerning the reissuance of the VPDES permit listed below. This permit is being processed as a Minor, Industrial permit. The effluent limitations contained in this permit will maintain the Water Quality Standards of 9 VAC 25-260 et seq. The intermittent discharge results from the operation of a mineral sands concentrator facility. This permit action consists of adding one process/stormwater Outfall and updating all applicable effluent limitations and monitoring requirements. SIC Code: 1099

1. Facility Name and Address: Iluka Resources Inc – Brink Concentrator Plant
5945 Brink Road
Emporia, VA 23847

Facility Contact Name:	Mr. Kevin Rideout
Title:	Environmental Superintendent
Mailing Address:	12472 St. John Church Road Stony Creek, VA 23882
Telephone:	(434) 348-4316
Email:	Kevin.Rideout@iluka.com

2. Permit Number: VA0092436
Permit Expiration Date: May 4, 2015

3. Owner Name and Address: Iluka Resources Inc.
12472 St. John Church Road
Stony Creek, VA 23882
Telephone: (434) 348-4300

4. Application Complete: December 2, 2014

Permit Drafted By:	Laura Galli	Date: January 30, 2015
Permit Reviewed By:	Zack Oremland	Date: February 2, 2015
Permit Reviewed By:	Emilee Adamson	Date: February 23, 2015

5.

Receiving Stream Name:	UT to Fountains Creek
Basin:	Chowan River and Dismal Swamp
Subbasin:	Chowan River
Section:	3
Class:	III
Special Standards:	None
River Mile:	5AXHZ001.37 for 101 and 001; 5AXHZ001.58 for 002
7-Day, 10-Year Low Flow (7Q10):	0 MGD
1-Day, 10-Year Low Flow (1Q10):	0 MGD
30-Day, 5-Year Low Flow (30Q5):	0 MGD
30-Day, 10-Year Low Flow (30Q10):	0 MGD
7Q10 High Flow:	0 MGD
1Q10 High Flow:	0 MGD
Harmonic Mean Flow (HM):	0 MGD
Tidal?	No
On 303(d) list?	No

Discharge is to an intermittent stream. See Flow Frequency Memorandum dated October 7, 2014 (**Attachment A**).

6. **Operator License Requirements**: A licensed operator is not required.

7. **Reliability Class**: Not Applicable to industrial facilities.

8. **Permit Characterization**:

(X) Existing Discharge
(X) Effluent Limited
(X) Industrial
(X) Private
(X) Reissuance
(X) Water Quality Limited
(X) Whole Effluent Toxicity Required

9. **Discharge Description**:

Table 1: Discharge Description

Outfall	Discharge Source	Treatment	Max Daily Flow
101	Mineral Sands Concentrator. This Outfall has the potential to discharge only during inclement weather.	Process Pond	~3.6 MGD
001	Mineral Sands Concentrator. Process Pond Discharge Commingled with Storm Water.	Sediment Basin	Variable
002	Mineral Sands Concentrator. Turkey Nest Process Pond discharge comingled with stormwater. This Outfall has the potential to discharge only during inclement weather. The source of process water would be the same as for Outfall 101.	Process Pond	~2.0 MGD

See **Attachment B** for Site Map and flow diagrams.

Iluka Resource Inc. mines heavy mineral sands for ilmenite, zircon, and staurolite. Iluka was issued VPDES permits for two other concentrator plants: Concord Mine Concentrator (VA0091456) and Old Hickory Concentrator Plant (VA0092126). The equipment from the Old Hickory Concentrator Plant was relocated to the Brink Plant to make it operational. At the concentrator plants the facility uses process water to move and separate mineral sands from clay and gangue minerals in the ore body. Coarse waste material such as pebbles, gravel, and quartz sand is removed from the process water during the physical separation using screens and gravity separation. The process water enters a thickener, where suspended clays will settle out with the aid of biodegradable flocculent. The settled clays are pumped along with the previously removed coarse materials, to tailings ponds for disposal and post-mining land reclamation. The water then flows from the thickener to the Clarifying Pond. The remaining solids settle out and the water flows from the Clarifying Pond through a weir to the Process Pond. The water is then recycled back into the plant in most circumstances. The Process Pond seldom discharges because the concentrator process includes the recycling and reuse of most of its water supply; however, the Process Pond has the potential to discharge during major storm events or after several days of precipitation. If the Process Pond does discharge from Outfall 101, it is designed to flow into a Sediment Basin used to collect stormwater from the 3.92 acre site. The Sediment Basin is expected to discharge from Outfall 001 during large storm events or after several days of precipitation. For this permit reissuance the permittee has requested the addition of Outfall 002. This Outfall has the potential to discharge the process wastewater from the concentrator plant that is collected in the Turkey Nest Process Pond. Wastewater would comingle with stormwater in the Turkey Nest Process Pond and discharge from Outfall 002 during inclement weather.

Mined materials are stored on site on the Stacker Pad for less than one month while awaiting shipment to the Iluka - Mineral Separation Plant in Stony Creek, VA. Stormwater that falls on the

stockpiled material drains from the Stacker Pad to a sump, where it will be pumped into the process water system.

Additionally, the associated mining sites are surrounded by perimeter berms that separate stormwater that comes in contact with industrial activity at the mines. Industrial stormwater from the mines is contained inside the berms and sent back to the concentrator plant.

10. **Solids Disposal**: Sediment not associated with domestic wastewater is generated in the mining and concentration process and settles out in the settling ponds. Periodically, the sediment is pumped out of the ponds and into the mine pits as they are reclaimed.

11. **Discharge Location Description**:

Coordinates:	Latitude	Longitude
Outfall 101	36° 37' 26"	77° 37' 43"
Outfall 001	36° 37' 28"	77° 37' 44"
Outfall 002	36° 37' 23"	77° 37' 56"

See **Attachment B** for Site Map.

Map Name: Richmond (126C) Quadrangle

12. **Material Storage**: The facility uses an aluminum chloride hydroxide and calcium chloride based flocculent for water clarification in the settling ponds. Diesel fuel and lubricants are stored in above-ground tanks with secondary containment. Off-road diesel fuel is stored in a 10,000 gallon, double walled tank and on-road diesel is stored in a 500 gallon, double walled tank. The approved groundwater monitoring plan requires testing for TPH as a precautionary measure. All other materials considered a threat to the environment are stored in containers and under roof at this facility.

13. **Ambient Water Quality Information**:
Ambient water quality data are not needed because the receiving stream flows are zero at the theoretical low flows used to determine the need for effluent limitations. For this reason, effluent is assumed to comprise 100% of the discharge and effluent data were used in place of ambient stream data to evaluate the wasteload allocations and the need for effluent limitations. Tributary XHZ was not assessed for any Designated Use during the 2012 305(b)/303(d) Integrated Water Quality Assessment Report; therefore, the waterbody is considered a Category 3A.

14. **Antidegradation Review & Comments**: Tier 1 **X** Tier 2 _____ Tier 3 _____
The State Water Control Board's Water Quality Standards includes an antidegradation policy (9 VAC 25-260-30). All state surface waters are provided one of three levels of antidegradation protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect those uses must be maintained. Tier 2 water bodies have water quality that is better than the water quality standards. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 water bodies are exceptional waters and are so designated by regulatory amendment. The antidegradation policy prohibits new or expanded discharges into exceptional waters.

The antidegradation review begins with a Tier determination. The unnamed tributary to Fountains Creek is determined to be a Tier 1 waterbody. This determination is based on the intermittent nature of the stream where beneficial uses cannot be fully attained (see **Attachment A**).

15. **Site Inspection and Site Visit**: Date: November 3, 2011 and January 20, 2015 respectively. Performed by: Mike Dare (2011) and Laura Galli (2015). See **Attachment C**.

16. **Effluent Screening & Limitation Development**:

Outfall 101 and 002

In order to characterize the process water effluent, the permittee has monitored for pH and TSS annually at Outfall 101 since 2010. In addition, the permittee has provided effluent monitoring data from Attachment A – Water Quality Criteria Monitoring, and has sampled for all parameters listed in form 2C. Monitoring results from the Brink site showed that all parameters on the Attachment A – Water Quality Criteria Monitoring form were below agency accepted quantification levels (QLs) with the exception of chloride and chromium III. For purposes of analysis, parameters are believed absent if reported as less than an agency acceptable "QL." Because the sampling result for chromium III was reported only as less than the quantification level, it is uncertain if chromium III is actually present in the wastewater. Chloride is believed present in the wastewater because a value of 4.7 mg/L was reported. Therefore, further statistical analysis for chloride and chromium III were required to determine if limitations were necessary.

A limitation evaluation begins by determining chronic and acute wasteload allocations (WLAs) using the MSTRANTI Excel Spreadsheet. MSTRANTI produces wasteload allocations (WLAs) using data inputs determined by the permit writer to be appropriate based on monitoring data, best professional judgment, and a comparison to the Virginia Water Quality Standards (9 VAC 25-260 et seq.). MSTRANTI also provides a list of Site Specific Target Values (SSTVs), which are concentrations below which metals data will not require limitation. See **Attachment D** for effluent data submitted in the Discharge Monitoring Reports (DMRs) for Outfall 101 and with the permit application.

Stream and effluent information (See **Attachment D** for the MSTRANTI spreadsheet data source) were entered into MSTRANTI Excel spreadsheet (**Attachment D**) to calculate any wasteload allocations (WLA) that are applicable for the statistical analysis to determine if limitations are needed. The statistical analysis also specifies the numeric value if a limitation is deemed necessary to be protective of water quality standards. Since the permit contains a condition that limits discharge at Outfall 101 to no more than three consecutive days, there was no need to analyze for chronic toxicity. Only acute toxicity was evaluated.

The acute WLA for chloride (860,000 µg/L) as calculated by MSTRANTI was entered into the STATS.exe program (**Attachment D**) with an actual data value of 4,700 µg/L. The resulting analysis indicated that a limitation based on acute toxicity is not required.

The acute WLA for chromium III (1,800 µg/L) as calculated by MSTRANTI was entered into the STATS.exe program. Since the sampling results indicated a value of <10 µg/L, a data value of 10 µg/L was entered in STATS.exe to represent a worst case scenario. The resulting analysis indicated that a limitation based on acute toxicity is not required.

Form 2C has reported detections for the following parameters: total suspended solids, nitrate + nitrite (as N), total organic nitrogen, sulfate, total aluminum, total barium, total iron, total magnesium, total manganese, fecal coliform and total phenols. There are no Water Quality Standards for these parameters, except for total phenols; therefore a reasonable potential analysis for these parameters is not required. Data for total phenols were evaluated in relation to Human Health Standards; the reported value (0.018 µg/L) is far below the wasteload allocation for this parameter (860,000 µg/L).See **Attachment D.**

For the 2015 Permit, Effluent Limitations Guidelines in part 440 – Ore Mining and Dressing Point Source Category are utilized. This facility fits subpart E – Titanium Ore Category.

Table 2: Basis for Effluent Limitations in Part I.A.1 **Outfall 101 and 002**

Effluent Characteristics	Basis for Limit	Discharge Limits			Monitoring Requirements	
		Monthly Average	Min	Max	Frequency	Sample Type
Flow (MGD)	NA	NL	NA	NL	1 per 3 Months	Estimate
pH (S.U.)	1, 2	NA	6.0	9.0	1 per 3 Months	Grab
Total Suspended Solids (TSS) (mg/L)	2	20	NA	30	1 per 3 Months	Grab
Total Recoverable Iron (mg/L)	3	NL	NA	NL	1 per year	Grab

NL = No Limitation
NA = Not Applicable
1. Water Quality Standards Based Limitation
2. Permit Writer Judgment (PWJ) based on Effluent Guidelines, 40 CFR 440.54(c), New Source Performance Standards (NSPS) requirements for Ore Mining and Dressing Point Sources (**Attachment E**).
3. Permit Writer Judgment (PWJ)

TSS and pH: This limitations are based on application of Federal Effluent Guidelines, 40 CFR 440.54(c), NSPS requirements for Ore Mining and Dressing Point Sources based on Permit Writer Judgment (PWJ). These limitations are applied as PWJ because this facility does not meet the complete definition of "milling techniques" specified in the referenced effluent guideline to include "wet gravity methods in conjunction with electrostatic or magnetic methods." The limitations are deemed appropriate because mining activity, processing, and expected wastewater treatment processes, and expected pollutants are identical as those limited by the referenced regulation with the exception of electrostatic or magnetic methods used in the milling process. Because this level of wastewater treatment is standard for much of the Ore Mining and Dressing industry, there should be little difficulty in meeting the limits which apply to similar facilities which also utilize electrostatic or magnetic milling techniques in addition to wet gravity methods.

pH: 9 VAC 25-260-50 of the VA Water Quality Standards outlines numerical criteria for pH in Class III waters between 6.0 S.U. and 9.0 S.U.

Total Recoverable Iron: Although Federal Effluent Guidelines, 40 CFR 440.54(c), NSPS requirements for Ore Mining and Dressing Point Sources include limitations for Total Recoverable Iron that might be applied to the facility's process discharge on a PWJ basis, annual monitoring only will be required for this parameter for the next permit cycle. Monitoring will allow the gathering of more information on the iron concentrations in the plant's process discharges at Outfalls 101 and 002. In addition, the permittee will be required to conduct annual monitoring for the surface water and groundwater source points of the plant's process water in accordance with Permit special condition I.B.15. This data will provide more information on the source of iron, and may be used for future permitting decisions.

Whole Effluent Toxicity (WET) Testing: Since 2009 the Permittee has submitted eight WET testing results. Although these results did not show any toxicity in the Outfall 101 discharge, the current permit requires the permittee to submit a total of ten WET Testing results before evaluating the toxicity of the discharge. Therefore, this special condition will be maintained in the 2015 permit as condition I.B.6.

Outfall 001 – Stormwater Evaluation
Iluka Brink Mine Concentration Plant falls under industrial Sector G – Metal Mining, SIC 1099, which recommends specific management requirements for stormwater that falls on site. The process water that discharges from Outfall 101 is designed to flow into a sediment basin used to collect stormwater from the 3.92 acre site. The sediment basin is expected to discharge from Outfall 001 during large storm events or after several days of precipitation.

Stormwater discharges associated with industrial activity require a permit to include stormwater management provisions, which are: effluent limitation evaluation; compliance monitoring; analytical monitoring; stormwater management evaluation; stormwater special conditions; and a stormwater pollution prevention plan (SWPPP).

Effluent Limitation Evaluations

Guidance Memo 96-001 recommends that chemical-specific water quality-based limits not be placed on stormwater Outfalls at this time because the methodology for developing limits and the proper method of sampling is still a concern and under review/reevaluation by EPA. Exceptions would be where a VPDES permit for a stormwater discharge has been issued that includes effluent limitations (backsliding must be considered before these limitations can be modified) and where there are reliable data, obtained using sound, scientifically defensible procedures, which provide the justification and defense for an effluent limitation. This permit proposes to establish effluent limitations for all parameters on the process water pond (Outfall 101) prior to discharge into the stormwater pond (Outfall 001). This approach represents the process water pond as discharging directly to the receiving stream, which could actually be the case during periods of minimal rainfall when the pond is full of process water and overflowing. This approach also means that the pond is not a wastewater treatment unit.

Where limitations are not established, pollutants are typically assessed against screening criteria developed solely to identify those additional pollutants that should be given special emphasis during development and assessment of the SWPPP. The SWPPP, required by Part I.C.3 of the permit, is designed to reduce pollutants in stormwater runoff. To determine which pollutants are of concern, stormwater effluent data is compared to the more stringent of two times the pollutant's acute water quality criterion as outlined by the *Virginia Water Quality Standards* (WQS) or the pollutant's benchmark monitoring concentration as contained in DEQ's VPDES General Permit for Stormwater Associated with Industrial Activity and in the VPDES Permit Manual dated March 27, 2014, Section IN4 – Industrial Stormwater Discharges.

The calculation of two times the acute criterion takes into account the receiving stream and effluent characteristics and is calculated using the MSTRANTI spreadsheet for wasteload allocations (**Attachment F**). For this facility, since the receiving stream is a dry ditch, ambient stream characteristics are assumed to be the same as the effluent. The MSTRANTI Spreadsheet is used only as a tool to calculate two times the acute criterion for the stormwater evaluation.

Benchmark pollutants are those pollutants that, due to the nature of the industrial activity or materials stored on the site, have the potential to be present in stormwater discharges.

A comparison of effluent data to the VAR05 Industrial Stormwater General Permit (ISWGP) benchmarks contained in 9 VAC 25-151-10 et seq. and to acute screening criteria, as applicable, is presented below in Table 3 for Outfall 001. Effluent data collected during the permit cycle and reported on Discharge Monitoring Reports (DMRs) from 2010 to 2014 is included in **Attachment F**. Data not included was reported as believed absent or <QL and was considered absent for the purpose of this evaluation. Data in bold text indicates a concentration above the corresponding benchmark or screening value, with the corresponding screening and/or benchmark value in bold text as well. During the 2010 permit cycle, the permittee was required to monitor for several parameters at Outfall 001 so that the Department may evaluate any water quality concerns from the stormwater discharges. These parameters are established in the VPDES Permit Manual Section on Industrial Storm Water discharges for Sector G - Metal Mining (Ore Mining and Dressing – Section IN-4, page 4). Monitoring results of each parameter are compared to twice the acute wasteload allocation for that parameter. If results exceed the two times the acute wasteload allocation, further stormwater evaluation is required.

In cases where the reported concentrations exceed either screening criteria or the benchmarks, the permit requires that the permittee implement BMPs for the problem Outfalls in accordance with the SWPPP to reduce the pollutant concentrations in the stormwater runoff. The effectiveness of the SWPPP will be evaluated through the required monitoring for all parameters listed in Part I.A of the permit. During the term of the permit, monitoring data demonstrating effluent concentrations that exceed the screening criteria included in the permit will trigger action by the permittee, including review of the SWPPP and BMP.

Table 3: Stormwater Effluent Evaluation: **Outfall 001**

Parameter	Highest Detected Value	2 x WLA_a	Stormwater Sector Benchmark
TSS	93.6 mg/L	NA	100 mg/L
Hardness	36.4	NA	NA
pH	8.36 S.U.	NA	6.0-9.0 S.U.
Turbidity	39.4 NTU	NA	50 NTU
Total Nitrogen	0.21 mg/L	NA	NA
Antimony	<100 µg/L	NA	640 µg/L
Arsenic	<50 µg/L	680 µg/L	50 µg/L
Beryllium	<10 µg/L	NA	130 µg/L
Cadmium	**<10 µg/L**	**2.5 µg/L**	**2.1 µg/L**
Copper	**<20 µg/L**	**10 µg/L**	**18 µg/L**
Iron	**3,710 µg/L**	NA	**1,000 µg/L**
Lead	<10 µg/L	66 µg/L	120 µg/L
Mercury	<0.2 µg/L	2.8 µg/L	1.4 µg/L
Nickel	<20 µg/L	160 µg/L	470 µg/L
Selenium	<5 µg/L	40 µg/L	5.0 µg/L
Silver	**<5 µg/L**	**1.2 µg/L**	**3.8 µg/L**
Zinc	17.5 µg/L	86 µg/L	120 µg/L

Section IN-4 of GM14-2003 states, "If the monitoring data reported by the permittee indicates conclusively that a parameter is not present in the stormwater runoff, then that parameter may be dropped." Total Recoverable Beryllium and Total Recoverable Mercury have not been detected during the last permit cycle; therefore, the monitoring of these parameters may be dropped. For those metals that exceed the screening level (2x acute) or the benchmark value, the continued monitoring is required. For metals where the presence in stormwater is uncertain, continuation of monitoring is appropriate and based on Permit Writer Judgment (PWJ), which is defined as the best professional judgment of the permit writer to assign limitations and or monitoring requirements protective of water quality that are not explicitly contained in the *Virginia Water Quality Standards* (9 VAC 25-260 et seq.) or federal effluent limit guidelines. Parameters for which limitations and/or monitoring requirements have been added, removed or modified are listed and discussed below.

Total Recoverable Antimony, Arsenic, Lead, Nickel and Selenium: Although sampling results for these parameters were reported only as less than the QL (with a QL > than the agency acceptable QL), DMR data submitted for these parameters never exceeded screening criteria or benchmark values. Therefore, monitoring for these parameters may be dropped.

Total Recoverable Beryllium and Total Recoverable Mercury: DMR data submitted for beryllium and mercury are below the agency accepted QLs for these parameter, and do not exceed screening criteria or benchmark values. Therefore, the monitoring for these parameters may be dropped.

Total Recoverable Cadmium, Copper and Silver: Because the sampling results for cadmium, copper and silver were reported in the DMR only as less than their QLs (with QLs > than the agency acceptable QLs), and the reported QLs exceed both the screening criteria and the stormwater

benchmark, continued monitoring for these parameters is recommended. The screening criterion (2x acute WLA) is more stringent than the benchmark concentration for copper and silver; consequently, the copper and silver screening criteria will be used as a comparative value in Part I.C.1 of the permit.

Total Recoverable Iron: DMR data for iron show a highest concentration of 3.71 mg/L, which exceeds the respective stormwater benchmark. Therefore, continued monitoring for this parameter is recommended.
Total Recoverable Zinc: DMR data for zinc show a highest concentration of 17.5 µg/L. Although this value does not exceed the screening criterion or the respective stormwater benchmark, continued monitoring for this parameter is appropriate. The screening criterion (2x acute WLA) for zinc is more stringent than its benchmark concentration; consequently, the zinc screening criterion will be used as a comparative value in Part I.C.1 of the permit.

Total Nitrogen: a concentration of 0.21 mg/L for total nitrogen was reported on EPA form 2F. Although there is no screening criterion or sector benchmark for this parameter, its monitoring is added to the 2015 permit.

TSS, pH, Hardness and Turbidity: Continued monitoring for these parameters is carried over from the 2010 permit and recommended by the facility's specific industrial sector.

Whole Effluent Toxicity (WET) Testing: WET testing requirements are added to Outfall 001 to monitor the toxicity of the stormwater component discharging through this Outfall. In accordance with the Industrial Stormwater section of GM14-2003, if the discharge contains pollutants that exceed the screening criteria, a WET testing special condition is required.

Table 4: Outfall 001 Basis for Final Limitations and Monitoring Requirements

EFFLUENT CHARACTERISTICS	BASIS FOR LIMITS	DISCHARGE LIMITS			MONITORING REQUIREMENTS	
		MONTHLY AVERAGE	MIN	MAX	FREQUENCY*	SAMPLE TYPE
Flow (MG)	NA	NL	NA	NL	1 per 3 Months	Estimate
pH (S.U.)	1	NL	NA	NL	1 per 3 Months	Grab
Hardness as CaCO3 (mg/L)	2	NL	NA	NL	1 per 6 Months	Grab
Turbidity (NTU)	2	NL	NA	NL	1 per 6 Months	Grab
Total Suspended Solids (TSS)(mg/L)	2	NL	NA	NL	1 per 3 Months	Grab
Total Recoverable Cadmium (µg/L)	2	NL	NA	NL	1 per 3 Months	Grab
Total Recoverable Copper (µg/L)	2	NL	NA	NL	1 per 3 Months	Grab
Total Recoverable Iron (µg/L)	2	NL	NA	NL	1 per 6 Months	Grab
Total Recoverable Silver (µg/L)	2	NL	NA	NL	1 per 3 Months	Grab
Total Recoverable Zinc (µg/L)	2	NL	NA	NL	1 per 6 Months	Grab
Total Kjeldahl Nitrogen (TKN) (mg/L)	3	NL	NA	NL	1 per 6 Months	Grab
Nitrite+Nitrate (mg/L)	3	NL	NA	NL	1 per 6 Months	Grab
Total Nitrogen (TN) (mg/L)	3	NL	NA	NL	1 per 6 Months	Calculated

NL = No Limitation; NA = Not Applicable.
1 = Water Quality Standards (9 VAC 25-260)
2 = Sector-specific storm water requirements 40 CFR Part 433
3 = Permit Writer Judgment (PWJ)
* = In accordance with GM14-2003 Industrial Stormwater Section, monitoring frequencies are determined as 1 per 6 months for benchmark monitoring parameters and 1 per 3 months for parameters that exceed the respective screening criteria.

17. **Antibacksliding:** In the 2015 permit, all limitations are as stringent as in the previous permit and protective of water quality.

18. **Special Conditions:**

I.B.1 **Operation and Maintenance Manual Requirement**
Rationale: Required by Code of Virginia § 62.1-44.16; VPDES Permit Regulation, 9 VAC 25-31-190 E, and 40 CFR 122.41(e). These require proper operation and maintenance of the permitted facility. Compliance with an approved O&M manual ensures this.

I.B.2 **Notification Levels**
Rationale: Required by VPDES Permit Regulation, 9 VAC 25-31-200 A for all manufacturing, commercial, mining, and silvicultural dischargers.

I.B.3 **Materials Handling and Storage**
Rationale: 9 VAC 25-31-50 A prohibits the discharge of any wastes into State waters unless authorized by permit. Code of Virginia § 62.1-44.16 and 62.1-44.17 authorizes the Board to regulate the discharge of industrial waste or other waste.

I.B.4 **Compliance Reporting**
Rationale: Authorized by VPDES Permit Regulation, 9 VAC 25-31-190 J 4 and 220 I. This condition is necessary when pollutants are monitored by the permittee and a maximum level of quantification and/or a specific analytical method is required in order to assess compliance with a permit limit or to compare effluent quality with a numeric criterion. The condition also establishes protocols for calculation of reported values.

I.B.5 **Reopeners:**

Total Maximum Daily Load Rationale: Section 303(d) of the Clean Water Act requires that Total Maximum Daily Loads (TMDLs) be developed for streams listed as impaired. This special condition is to allow the permit to be reopened if necessary to bring it into compliance with any applicable TMDL approved for the receiving stream. The reopener recognizes that, according to Section 402(o)(1) of the Clean Water Act, limits and/or conditions may be either more or less stringent than those contained in this permit. Specifically, they can be relaxed if they are the result of a TMDL, basin plan, or other wasteload allocation prepared under section 303 of the Act.

Water Quality Criteria Reopener
Rationale: VPDES Permit Regulation, 9 VAC 25-31-220 D requires effluent limitations to be established which will contribute to the attainment or maintenance of the water quality standards.

I.B.6 **Whole Effluent Toxicity Testing**
Rationale: VPDES Permit Regulation, 9 VAC 25-31-210 and 220 I, requires monitoring in the permit to provide for and assure compliance with all applicable requirements of the State Water Control Boars and the Clean Water Act.

I.B.7 **Quarterly Reporting Requirements**
Rationale: The intermittent frequency with which this facility discharges may prevent a sampling event from occurring on a minimum basis of once per 3 months as indicated by the minimum monitoring requirements in Part I.A.1, 2 and 3 of the 2015 permit. Therefore further sampling instructions have been added in this special condition for quarters in which no discharge occurs in order that the permittee remains consistent with previous sampling practices and current agency policy.

I.B.8 **Concept Engineering Report (CER)**
Rationale: §62.1-44.16 of the Code of Virginia requires industrial facilities to obtain DEQ approval for proposed discharges of industrial wastewater. A CER means a document setting forth preliminary concepts or basic information for the design of industrial wastewater treatment facilities and the supporting calculations for sizing the treatment operations.

I.B.9 **Closure Plan**
Rationale: This condition establishes the requirement to submit a closure plan for the treatment works if the treatment facility is being replaced or is expected to close. This is necessary to ensure industrial sites and treatment works are properly closed so that the risk of untreated waste water discharge, spills, leaks and exposure to raw materials is eliminated and water quality maintained. Section 62.1-44.21 requires every owner to furnish when requested plans, specification, and other pertinent information as may be necessary to determine the effect of the wastes from his discharge on the quality of state waters, or such other information as may be necessary to accomplish the purposed of the State Water Control Law.

I.B.10 **Groundwater Monitoring**
Rationale: 9 VAC 25-280-20. Except where otherwise specified, groundwater quality standards shall apply statewide and shall apply to all groundwater occurring at and below the uppermost seasonal limits of the water table. In order to prevent the entry of pollutants into groundwater occurring in any aquifer, a soil zone or alternate protective measure or device sufficient to preserve and protect present and anticipated uses of groundwater shall be maintained at all times. 9 VAC 25-280-60 Groundwater criteria, although not mandatory, also provide guidance in preventing groundwater pollution. Also, State Water Control Law 62.1-44.21 authorizes the Board to request information needed to determine

the discharge's impact on State waters. Groundwater monitoring for parameters of concern will indicate whether possible lagoon/pond seepage is resulting in violations to the State Water Control Board's Groundwater Standards.

Since 2012, the permittee has been conducting quarterly groundwater monitoring from one background well (BMW-1A) and three downgradient wells (BMW-3, BMW-4 and BMW-5) in accordance with the approved Groundwater Monitoring Plan. The parameters of concerns are conductivity, total dissolved solids, total suspended solids, temperature, pH, total organic carbon, chloride, lead, copper, zinc, iron, manganese, and TPH DRO and GRO. A summary of monitoring data collected from 2012 to 2014 and statistical analyses are provided in **Attachment H.** Statistical analyses show that a statistically significant difference exists between upgradient well and downgradient wells for the following parameters: conductivity (BMW-5), total dissolved solids and pH (BMW-3), and chloride (BMW-4 and BMW-5). Concentrations for chloride and total dissolved solids have been below the respective groundwater criteria in accordance with 9 VAC 25-280-70, while pH values have been consistently outside the range of 5.5 S.U. and 8.5 S.U. in all four wells in accordance with 9 VAC 25-280-50. Although there is no statistically significant difference between upgradient and downgradient wells for iron and manganese, the concentrations for these parameters have been consistently above the applicable groundwater criteria. Based on these results, it appears that groundwater degradation exists onsite, and that the upgradient well may have been impacted as well.

To address the apparent groundwater degradation on site, the permittee will be required to perform the following: collect more sampling data from all groundwater monitoring wells in accordance with the approved groundwater monitoring plan, including reprising quarterly monitoring for manganese; provide seasonal potentiometric maps to evaluate groundwater flow direction and the adequacy of the upgradient well location; and perform a groundwater evaluation to assess the apparent groundwater degradation. This data will be used to determine the need for a groundwater corrective action plan.

I.B.11 **Limitations on Discharge at Outfall 101**

Rationale: Outfall 101 has a non-continuous discharge to which the chronic water quality standards have not been applied. To ensure that chronic toxicity does not occur, after three consecutive calendar days, the facility must cease discharging for a minimum of 24 hours. For purposes of this permit, the reference to three consecutive calendar days cannot be interpreted to mean a continuous discharge over a three day period, but any discharge on three consecutive calendar days.

I.B.12 **New Discharges which are permitted from Form 2D**

Rationale: The permit limitations are based on assumed effluent quality characteristics when application Forms 2D or 2E are used. These assumptions (and the permit basis) can only be validated with actual effluent data. The submission of actual data is required in the application form instructions.

I.B.13 **Sampling to Fulfill Form 2F Requirements**

Rationale: In some cases, applicants may not have been able to comply with the Form 2F stormwater sampling requirements due to the lack of a representative storm event. This special condition requires the permittee to sample and submit data from a storm event to fulfill the requirements of Form 2F.

I.B.14 **Water Quality Criteria Monitoring**

Rationale: State Water Control Law §62.1-44.21 authorizes the Board to request information needed to determine the discharge's impact on State waters. To ensure that water quality standards are maintained, the permittee is required to analyze the facility's effluent for the substances noted.

I.B.15 **Influent Monitoring**
Rationale: In order to obtain information needed to determine background concentrations of Total Recoverable and Dissolved Iron in the facility's influent, the permittee is required to provide annual monitoring data for this parameter at all surface water and groundwater source points.

I.C.1-4 **Stormwater Management Evaluation; General Stormwater Special Conditions; Stormwater Pollution Prevention Plan; and Benchmark Monitoring**
Rationale: VPDES Permit Regulation 9 VAC 25-31-10 defines discharges of stormwater from industrial activity. 9 VAC 25-31-120 requires a permit for these discharges. The Stormwater Management Evaluation, General Stormwater Special Conditions, Stormwater Pollution Prevention Plan requirements, and Benchmark Monitoring requirements of the permit are derived from the VPDES general permit for discharges of stormwater associated with industrial activity (VAR05), 9 VAC 25-151-10 et seq. VPDES Permit Regulation, 9 VAC 25-31-220 K, requires use of best management practices where applicable to control or abate the discharge of pollutants when numerical effluent limits are infeasible or the practices are necessary to achieve effluent limits or to carry out the purpose and intent of the Clean Water Act and State Water Control Law. General stormwater requirements, SWPPP requirements, and monitoring requirements have been included in accordance with the GM14-2003 Permit Manual Section IN-4 and in accordance with the VAR05 Industrial Stormwater General Permit (9 VAC 25-151-10 et seq.).

I.D **Sector Specific Stormwater Pollution Prevention Plan Requirements for Metal Mining (Ore Mining and Dressing)**
Rationale: VPDES Permit Regulation 9 VAC 25-31-10 defines discharges of stormwater from industrial activity in 9 industrial categories. 9 VAC 25-31-120 requires a permit for these discharges. The Stormwater Pollution Prevention Plan requirements of the permit are derived from the VPDES general permit for discharges of stormwater associated with industrial activity (VAR05), 9 VAC 25-151-10 et seq. VPDES Permit Regulation, 9 VAC 25-31-220 K, requires use of best management practices where applicable to control or abate the discharge of pollutants when numerical effluent limits are infeasible or the practices are necessary to achieve effluent limits or to carry out the purpose and intent of the Clean Water Act and State Water Control Law. General stormwater requirements, SWPPP requirements, and monitoring requirements have been included in accordance with the current Permit Manual, Section IN-4, revised 2014.

Part II **Conditions Applicable to All Permits**
Rationale: VPDES Permit Regulation, 9 VAC 25-31-190 requires all VPDES permits to contain or specifically cite the conditions listed.

19. **NPDES Permit Rating Work Sheet:** Total Score 55, See **Attachment I**.

20. **Changes to the permit:**

PARAMETER	DISCHARGE LIMITS		MONITORING REQUIREMENTS		RATIONALE
	From	To	From	To	
Part I.A.1 (Outfall 101 and 002)					
Flow	No Change	No Change	1 / Quarter	1 per 3 Months	Modified frequency language for consistency with GM14-2003 and other VPDES permits.
pH	No Change	No Change	1 / Quarter	1 per 3 Months	Modified frequency language for consistency with GM14-2003 and other VPDES permits.

Total Suspended Solids	30 mg/L monthly average; 60 mg/L daily maximum	20 mg/L monthly average; 30 mg/L daily maximum	1 / Quarter	1 per 3 Months	Discharge Limitations modified in accordance with PWJ Modified frequency language for consistency with GM14-2003 and other VPDES permits.
Total Recoverable Iron	--	NL	--	1 per Year	Annual monitoring added in accordance with PWJ
---2015 Part I.A.1. footnote 1: Modified the reference to the Compliance Reporting Special Condition from I.D.4 to I.B.4 ---2015 Part I.A.1 and conditions Part I.A.1.a and c: Added Outfall 002.					
Part I.A.2 (Outfall 001)					
Flow	No Change	No Change	1 per Quarter	1 per 3 Months	Modified frequency language for consistency with GM14-2003 and other VPDES permits.
pH	No Change	No Change	1 per Quarter	1 per 3 Months	Modified frequency language for consistency with GM14-2003 and other VPDES permits.
Total Suspended Solids	No Change	No Change	1 per Quarter	1 per 3 Months	Modified frequency language for consistency with GM14-2003 and other VPDES permits.
Total Recoverable Antimony	No Change	No Change	1 per Year	1 per 6 Months	Modified frequency in accordance with GM14-2003 IN-4 Section A.1.c.
Total Recoverable Arsenic	NL	--	1 per Year	--	Parameter deleted as per GM14-2003 Section IN-4 Section A.1.c.
Total Recoverable Beryllium	NL	--	1 per Year	--	Parameter deleted as per GM14-2003 Section IN-4 Section A.1.c.
Total Recoverable Cadmium	No Change	No Change	1 per Year	1 per 3 Months	Modified frequency in accordance with GM14-2003 IN-4 Section A.2.b.
Total Recoverable Copper	No Change	No Change	1 per Year	1 per 3 Months	Modified frequency in accordance with GM14-2003 IN-4 Section A.2.b.
Total Recoverable Iron	No Change	No Change	1 per Year	1 per 6 Months	Modified frequency in accordance with GM14-2003 IN-4 Section A.1.c.
Total Recoverable Lead	NL	--	1 per Year	--	Parameter deleted as per GM14-2003 Section IN-4 Section A.1.c.
Total Recoverable Mercury	NL	--	1 per Year	--	Parameter deleted as per GM14-2003 Section IN-4 Section A.1.c.
Total Recoverable Nickel	NL	--	1 per Year	--	Parameter deleted as per GM14-2003 Section IN-4 Section A.1.c.
Total Recoverable Selenium	NL	--	1 per Year	--	Parameter deleted as per GM14-2003 Section IN-4 Section A.1.c.
Total Recoverable Silver	No Change	No Change	1 per Year	1 per 3 Months	Modified frequency in accordance with GM14-2003 IN-4 Section A.2.b.
Total Recoverable Zinc	No Change	No Change	1 per Year	1 per 6 Months	Modified frequency in accordance with GM14-2003 IN-4 Section A.1.c.

Total Nitrogen (as the sum of Nitrate+Nitrite and TKN)	--	NL	--	1 per 6 Months	Monitoring of this parameter has been added following the detected value reported in EPA form 2F.

---2015 Part I.A.2. footnote 1: Modified the reference to the Compliance Reporting Special Condition from I.D.4 to I.B.4
---2015 Part I.A.2 footnote 3: Added to define Total Nitrogen
---2015 Part I.A.2.d: modified the reference to stormwater monitoring requirements from Part I Sections E, F and G to Part I Sections C and D.

Part I Special Condition Changes:

From	To	Rationale
I.B.1/2/3	I.B.12/13/14	New Source Water Quality Monitoring: these three conditions are retained in the permit to characterize the process and stormwater discharges from new Outfall 002.
I.D.1	I.B.1	Operation and Maintenance Manual Requirement: updated in accordance with GM14-2003.
I.D.2	I.B.2	No Change.
I.D.3	I.B.3	No Change.
I.D.4	I.B.4	Compliance Reporting: language updated to match GM14-2003 boilerplate and to reflect the limitations and monitoring requirements in Part I.A. Monitored only parameters are not included in this section. Quantification Levels selected based on GM14-2003 protocol.
I.D.5	I.B.5	Reopeners: modified formatting to include the TMDL and Water Quality Criteria reopeners under one special condition.
I.C	I.B.6	WET Testing Requirements for Outfall 101 will be maintained in the 2015 permit. Language has been modified to reflect the need of two additional sets of quarterly acute toxicity tests.
--	I.B.7	Quarterly Reporting Requirements: new, added to clarify reporting requirements due to the intermittent nature of the facility's discharge.
--	I.B.8	Concept Engineering Report: special condition added to all industrial permits in accordance with GM14-2003.
I.D.6	I.B.9	Closure Plan: updated language in accordance with GM14-2003.
I.D.7	I.B.10	Groundwater Monitoring: updated in accordance with GM14-2003 to include new groundwater requirements.
I.D.8	I.B.11	No Change.
--	I.B.15	Influent Monitoring: Added special condition to require monitoring of surface water and groundwater sources of the plant's process water for future permitting decisions.
I.D.9	--	Water Quality Criteria Reopener: this special condition was incorporated into I.B.5.
--	I.C.1	Added Stormwater Management Evaluation in accordance with GM14-2003 due to exceedance of screening criteria for cadmium, copper and silver. Added WET testing requirements for Outfall 001.
I.E.1 through 8 and I.F	I.C.2 and I.C.3	General Stormwater Special Conditions and Stormwater Pollution Prevention Plan requirements updated in accordance with GM14-2003.
I.G	I.D	Sector Specific Stormwater Pollution Prevention Plan Requirements: updated in accordance with GM14-2003.

Part II Condition Changes:

Part II.	Part II.	Updated in accordance with GM14-2003 boilerplate language.

21. **Variances/Alternate Limits or Conditions:** None

22. **Public Notice Information required by 9 VAC 25-31-280 B:**

Comment period: Publishing Newspaper: *The Independent Messenger*
Publication Dates: March 18, 2015 and March 25, 2015
Start Date: March 18, 2015 End Date: April 20, 2015

All pertinent information is on file and may be inspected or copied by contacting Laura Galli at:

Virginia Department of Environmental Quality (DEQ)
Piedmont Regional Office
4949-A Cox Road
Glen Allen, Virginia 23060-6296

Telephone Number 804/527-5095
Facsimile Number 804/527-5106
Email laura.galli@deq.virginia.gov

Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request a public hearing, during the comment period. Comments shall include the name, address, and telephone number of the writer and of all persons represented by the commenter/requester, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing, including another comment period, if public response is significant and there are substantial, disputed issues relevant to the permit. Requests for public hearings shall state 1) the reason why a hearing is requested; 2) a brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit; and 3) specific references, where possible, to terms and conditions of the permit with suggested revisions. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given. The public may review the draft permit and application at the DEQ Piedmont Regional Office by appointment.

23. **Nutrient Requirements** Discharges to the Chowan Basin are not subject to the Chesapeake Bay Nutrient General Permit regulations. Additionally, the Chowan River Sub-Basin Section 3 is not subject to the Nutrient Enriched Waters designations found in 9VAC 25-260-350 of the Water Quality Standards regulation.

24. **Additional Comments:**

- Previous Board Action: the Board issued a Warning Letter on September 26, 2012 due to unauthorized discharges.
- Staff Comments:

a. Condition **D. 10. Clearing, Grading, and Excavation Activities** from the 2014 Permit Manual, Section IN-4, Sector G was included as stormwater that comes in contact with industrial activities at the associated mining sites is contained within the mine site and is sent to the concentrator plant, and therefore, no industrial stormwater is discharged to state waters at the mining sites. Based on this information, staff determined that the above mentioned permit condition is not applicable to this permit. With this change it is noted that the permittee is not authorized to discharge process or stormwater to state waters from the mining sites.

b. The watershed was included in the Fontaine Creek Bacterial TMDL, which was approved by the EPA on 1/13/2011 and by the SWCB on 8/4/2011. The facility was addressed in the report; an *E.*

coli wasteload allocation was not assigned because the facility is not permitted for fecal coliform control.

c. Monitoring frequency reductions based on past performance was not considered for this permit reissuance due to the intermittent nature of the permittee's discharge. Reduced frequencies in 2015 reflect the recommended monitoring frequencies of GM14-2003 Industrial Stormwater section.

d. This facility is permitted also under the General Permit for Discharges of Storm Water Associated with Industrial Activity (VAR051881). These stormwater Outfalls are designated 003 and 004.

- VDH Coordination Responses: See **Attachment J**
- Public Comment:
- Owner Comments: See **Attachment K**
- Fees: Annual maintenance fees are up to date, last paid October 2, 2014.
- Controversial Project / Permit? No.
- E-DMR Participation: The facility is enrolled in E-DMR. Enrollment date: 3/19/2010.
- Virginia Environmental Excellence Program (VEEP): The facility is not enrolled in VEEP.
- Planning Conformance Statement: The discharge is in conformance with the existing planning documents for the area.
- Local Government Notification of Discharge: In accordance with Section 62.1-44.15:4 D of the State Water Control Law, localities must be notified of proposed discharges at the time of application receipt. Notification was sent to the Greensville County Administrator, Mr. David Whittington on January 23, 2015.
- Local Government Notification of Public Notice: local government officials were notified of the public comment period on March 13, 2015. In accordance with the Code of Virginia, §62.1-44.15:01, the following individuals received the notification: Mr. David Whittington, Greensville County Administrator; Ms. Peggy Wiley, Chairman, Board of Supervisors; Mr. Mark Bittner, Crater Planning District Commission.
- Riparian land owner notification: In accordance with Section 62.1-44.15:4 D of the State Water Control Law, riparian landowners within a half mile downstream of the proposed discharge locations were notified. The Commissioner of Revenue's office for Greensville County was contacted on January 23, 2015 to obtain the property owners names and addresses. Twelve landowners were notified in writing by letter dated January 30, 2015. No comments were received.

25. Summary of attachments to this Fact Sheet:

Attachment A Flow Frequency Memorandum
Attachment B Site Map and Flow Diagrams
Attachment C Site Inspection and Site Visit Reports
Attachment D Outfall 101 DMR Data, MSTRANTI Data Source and Spreadsheet
Attachment E Effluent Guidelines, NSPS requirements for Ore Mining and Dressing Point Sources
Attachment F Outfall 001 DMR Data, MSTRANTI Data Source and Spreadsheet
Attachment G WET Tests results
Attachment H Groundwater Data Analysis
Attachment I NPDES Industrial Permit Rating Worksheet
Attachment J VDH Coordination Response
Attachment K Owner Comments and DEQ Response to Comments